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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,245	08/27/2003	Wolfgang Grieskamp	3382-64897	7189

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KLARQUIST SPARKMAN LLP
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EXAMINER

DAO, THUY CHAN

ART UNIT	PAPER NUMBER
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2192

MAIL DATE	DELIVERY MODE
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06/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/650,245

Applicant(s)

GRIESKAMP ET AL.

Examiner

Thuy Dao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) 12-16, 18, 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 17, 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 22-29 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the amendment filed on March 29, 2007.

2. Claims 1-11, 17, 19, and 22-29 have been examined.

Response to Amendments

3. Per Applicants' request, claims 1-4, 7-8, 19 have been amended. Claims 12-16, 18, and 20-21 have been canceled and claims 22-29 have been added.

4. The 35 USC §101 rejection over claims 1-6 is withdrawn in view of Applicants' amendments.

Response to Arguments

5. The Applicants are thanked for a thorough reply. Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

Restrictions/Election

6. New independent claims 22 and 27-28 have been added, which now explicitly direct to distinct inventions, thus prompt this Restriction requirement. Restriction to one of the following inventions is required under 35 U.S.C. 121:

(I). Claims 1-11, 17, and 19 are drawn to computer readable medium, a computerized method, a computer system for saving state of an executing program and resetting the executing program to the saved state using state frames, an application programming interface, an instruction pointer location, and a state object.

(II). New claims 22-26, particularly independent claim 22, are drawn to a computer-based process, which comprises distinct and independent characteristics: "...the saved program state represented by a state token..." (line 5) and "...returning the program to the saved program state using the state token" (lines 6-7).

New independent claim 22 explicitly requires the saved program state represented by a state token, wherein said limitations are distinct, independent, and not required in any previous groups.

(III). New independent claim 27 is drawn to a programming language construct, which comprises distinct and independent characteristics: *"...a state class comprising: a state object, a fork method ..., a set method ..., a join method ..."* (lines 5-11, emphasis added), wherein these limitations are distinct, independent, and not required in any previous groups.

(IV). New claims 28-29, particularly independent claim 28, is drawn to a computer program product, which comprises distinct and independent characteristics: *"...to save substantially all of the state of the program at a first given time... the second saved state frame comprising the values that have changed between the first given time and a second given time... restore state of the program to the second given time..."* (lines 5-11, emphasis added), wherein these limitations are distinct, independent, and not required in any previous groups.

7. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

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(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. Since the Applicants have received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, **new claims 22-29** are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

10. Claims 1-6 are objected to because of minor informalities.

Claim 1:

Claim 1, lines 3-8 were amended to recite "... *the method comprising: defining a first state frame ... and defining a second state frame ...*". Subsequently, dependent claims recite "...*defining a third state frame ...*" (claim 2), "...*defining a fourth frame ...*" (claim 3) ..., which all direct to a method, not a computer readable medium as currently recited.

Accordingly, claim 1, lines 1-3, is considered to read as - -A computer executable and semantically accessible state binding method, the method comprising: ...- -.

Claims 2-6:

The phrases are considered to read as - -The [[computer readable medium]] method of claim ...- -.

Furthermore, for consistency, the term - -state frame- - should be used instead of using both "*frame*" and "*state frame*" to recite a same state frame.

Appropriate correction is required.

Specification

11. The specification is objected to because of minor informalities. Acronyms should be spelled out at the first appearance in the specification (e.g., ASML in page 5; CLR in page 7; AMD, MIPS, PCI, VESA, AGP, ISA, EISA in page 25).

Appropriate correction is required.

12. The use of the trademarks .NET.TM., WINDOWS.TM., J2EE.TM. ... have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

Claim Rejections – 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Publication No. 2004/0148603 A1 to Baylis (art made of record, hereinafter "Baylis").

Claim 1:

Baylis discloses *a computer executable and semantically accessible state binding method, the method comprising:*

defining a first state frame including a representation of a state of an executing program (e.g., [0032])

comprising values of registers (e.g., [0011], [0021], [0032]) and heap associated with the executing program (e.g., [0009], [0027], [0053]); and

defining a second state frame including a representation of state changes made by the executing program after the first state frame is created (e.g., [0028-0029] and [0056-0057]) and

the second state frame includes a pointer back to the first state frame (e.g., [0012], [0017-0019], and [0021-0023]).

Claim Rejections – 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable by US Patent No. 7,003,770 B1 to Pang et al. (art made of record, hereinafter "Pang") in view of US Patent Publication No. 2004/0168078 A1 to Brodley et al. (art made of record, hereinafter "Brodley").

Claim 1:

Pang discloses *a computer executable and semantically accessible state binding method, the method comprising:*

defining a first state frame including a representation of a state of an executing program (e.g., col.4: 4-14),

comprising values of registers (e.g., col.4: 49-57) and

heap associated with the executing program (e.g., col.4: 36-50, 58-67; col.5: 28-38); and

defining a second state frame including a representation of state changes made by the executing program after the first state frame is created (e.g., col.4: 16-34) and

the second state frame returns back to the first state frame (e.g., col.4: 24-34, 47-54, and 59-67).

Pang discloses in a context switch, the second state frame returns back to the first state frame to restore the previous executing state as set forth above, but does not explicitly disclose using a pointer.

However, in an analogous art, Brodley further discloses *the second state frame includes a pointer back to the first state frame (e.g., [0033], [0060-0064]).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Brodley' s teaching into Pang' s teaching. One would have been motivated to do so to handle situations involving context switching or deeply nested function calls as suggested by Brodley (e.g., 0059-0061]).

Claim 2:

The rejection of claim 1 is incorporated. Pang also discloses *defining a third state frame including a representation of state changes made by the executing program after a fork method creates the third frame, and the third state frame includes a pointer back to the second frame* (e.g., FIG. 3, copy frames indicated in s to process p, col.6: 22 – col.7: 47).

Claim 3:

The rejection of claim 2 is incorporated. Pang also discloses *a fourth frame which includes changes made by the executing program after the fork method creates the third state frame and after a set method returns the executing program to the state of the second state frame* (e.g., col.4: 24-34).

Claim 4:

The rejection of claim 3 is incorporated. Pang also discloses *a joined state frame including a combination of state changes in the third and fourth frames* (e.g., col.3: 31-36; col.4: 47-58).

Claim 5:

The rejection of claim 3 is incorporated. Pang also discloses:

a first thread of the executing program makes state changes copied in the second frame (e.g., col.4: 49-57; col.5: 28-38), and

a second thread of the executing program makes state changes copied into the third frame (e.g., col.4: 4-14, 36-50; col.5: 58-67).

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Claim 6:

The rejection of claim 1 is incorporated. Pang also discloses *the second state frame includes unchanged state read from the first state frame* (e.g., col.4: 24-34 and 59-67).

17. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable by Baylis in view of US Patent No. 7,194,743 B2 to Hayton et al. (art made of record, hereinafter "Hayton").

Claim 7:

Baylis discloses *a computerized method comprising:*

receiving a request to create a state save (e.g., [0011], [0027], [0032]);

in response to the request, saving a first representation of a state of an executing program comprising copying state of the program required to return to the moment the state was saved (e.g., [0009], [0021], [0032], [0053]);

maintaining a second representation of subsequent state comprising changes made to the state of the executing program after the first representation (e.g., [0028-0029], [0056-0057]); and

resetting the executing program to the saved first representation upon receiving a state set request (e.g., [0012], [0017-0019], [0021-0023]).

Baylis does not explicitly disclose *receiving via an application programming interface a request to create a state save and receiving a state set request at the application programming interface*.

However, in an analogous art, Hayton further discloses *receiving via an application programming interface a request to create a state save and receiving a state set request at the application programming interface* (e.g., col.12: 3-39; col.30: 38 – col.31: 8; col.33: 27-44).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Hayton's teaching into Baylis's teaching. One would have been motivated to do so to obtain the present state and identify associated properties as suggested by Hayton (e.g., col.12: 3-39).

Claim 17:

Claim 17 recites the same limitations as those of claim 7, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the references teach all of the limitations of the above claim, they also teach all of the limitations of claim 17.

18. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable by Baylis in view of US Patent No. 6,510,448 B1 to Churchyard (art made of record, hereinafter "Churchyard").

Claim 8:

Baylis discloses *a computer system comprising memory and a central processing unit executing* (e.g., [0011], [0027], [0032]),

a program including executable instructions and an evolving present state; a state component comprising an initial representation of a prior evolving present state of the program, the initial representation comprising an instruction pointer location (e.g., [0009], [0021], [0032], [0053]),

a subsequent representation of state changes made by the program since the initial representation (e.g., [0028-0029], [0056-0057]), and

a method for returning the program state to the prior evolving present state using the instruction pointer location (e.g., [0012], [0017-0019], [0021-0023]).

Baylis does not explicitly disclose *an instruction pointer location and returning the program state using the instruction pointer location*.

However, in an analogous art, Churchyard further discloses *an instruction pointer location and returning the program state using the instruction pointer location* (e.g., col.5: 1 – col.6: 43).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Churchyard's teaching into Baylis's teaching. One would have been motivated to do so to examine and manage execution context as suggested by Churchyard (e.g., col.5: 23-43).

Claim 9:

The rejection of claim 8 is incorporated. Baylis also discloses *the state component further includes a method for reading a location and value from the initial representation of the prior evolving present state and storing the value in a subsequent representation of the state changes* (e.g., [0028-0029], [0056-0057]).

Claim 10:

The rejection of claim 8 is incorporated. Baylis also discloses *the state component includes a fork method for maintaining state for a thread spawned by the program and a forked representation of state changes made by the spawned thread of the program* (e.g., [0017-0019], [0021-0023]).

Claim 11:

The rejection of claim 10 is incorporated. Baylis also discloses *the state component includes a join method for joining state changes made by the forked thread back into state changes of the subsequent representation* (e.g., [0027], [0032], [0053]).

19. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable by Baylis in view of US Patent No. 6,014,666 to Helland et al. (art made of record, hereinafter "Helland").

Claim 19:

Baylis discloses *a computer readable method comprising computer executable instructions for performing a method comprising:*

receiving a request, to create a saved state of an executing model (e.g., [0011], [0027], [0032]);

saving a first representation of a state of the executing model as the state object (e.g., [0009], [0021], [0032], [0053]);

maintaining a second representation of state changes made by the executing model after the first representation (e.g., [0028-0029]), [0056-0057]); and reinstating the executing model state to the state of the first representation using the state (e.g., [0012], [0017-0019], [0021-0023]).

Baylis does not explicitly disclose *a request from a method, which takes as a parameter a state object, and using the state object.*

However, in an analogous art, Helland further discloses *a request from a method, which takes as a parameter a state object, and using the state object* (e.g., col.10: 22-54).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Helland's teaching into Baylis's teaching. One would have been motivated to do so to provide context for the execution of the server application component as suggested by Helland (e.g., col.10: 6-21).

Conclusion

20. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be

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reached on the first Monday of the bi-week, and every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

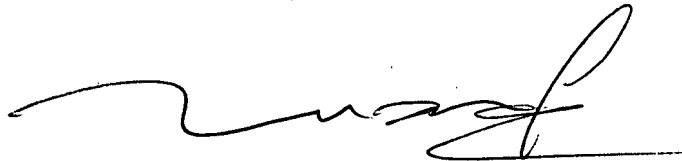
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao

A handwritten signature in black ink, appearing to read 'Tuan Q. Dam', with a long horizontal stroke extending to the right.

TUAN DAM
SUPERVISORY PATENT EXAMINER